

Using Early Learning Technology to Prepare Head Start Families for Kindergarten

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Access to high-quality preschool programs is a challenge for many families in the U.S. As a result, children often enter kindergarten unprepared and struggle to perform at grade level, which affects them for years to come. To aid in kindergarten readiness, the Head Start program provides comprehensive early childhood education, health, nutrition, and parent support services to low-income children and their families. But more than one million children who qualify for Head Start and Early Head Start are unable to enroll due to the high demand for limited spaces.¹ These children often spend months or years on a wait list for a Head Start program, with limited or no options for affordable high-quality preschool while they wait.

Even when a family is able to enroll their child in a Head Start program, they may have few educational resources at home. Head Start teachers often struggle to find high-quality resources to engage parents in their child's education and extend learning into the home—a key element of Head Start's Parent, Family, and Community Engagement Framework.²

The Albina Head Start program (Albina) in Portland, Oregon, illustrates these challenges. Serving hundreds of low-income families every school year since 1965,

Albina Head Start is a nationally recognized, award-winning organization. But like most Head Start programs, Albina does not have enough available spaces to meet the early learning needs of all eligible families in its community. Albina's teachers also report unmet needs for educational resources to engage parents in their children's development and education.

To help address these challenges, Albina partnered with Age of Learning, Inc., to provide enrolled and wait-listed children with free access to ABCmouse.com *Early Learning Academy*, a comprehensive supplemental digital learning resource for young children.

Using ABCmouse to Drive Student Achievement

In September 2014, Albina teachers began using ABCmouse as a supplemental curriculum in 25 classrooms with almost 500 students. A naturalistic study design was used in order to give all Albina students access to the ABCmouse curriculum: Age of Learning provided ABCmouse accounts to all Albina classrooms. Classrooms were expected to vary in the amount of their ABCmouse usage over the course of the year.³ Teachers recognized the value of ABCmouse

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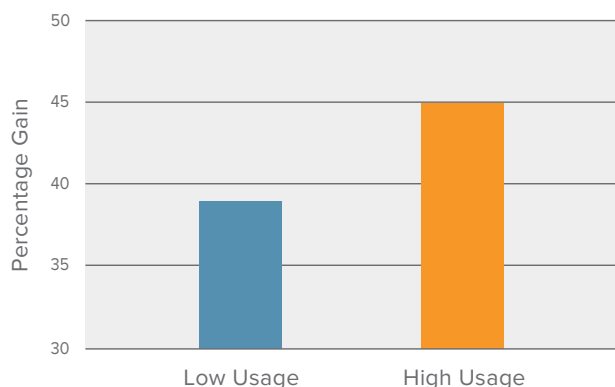
¹ Investing in Young Children: A Fact Sheet on Early Care and Education Participation, Access, and Quality (2013).

² The Head Start Parent, Family, and Community Engagement Framework Promoting Family Engagement and School Readiness, from Prenatal to Age 8 (2011).

³ ABCmouse usage varied across classrooms, including whole class, small group, and individual usage; some teachers assigned ABCmouse learning activities for use at home as well as in the classroom.

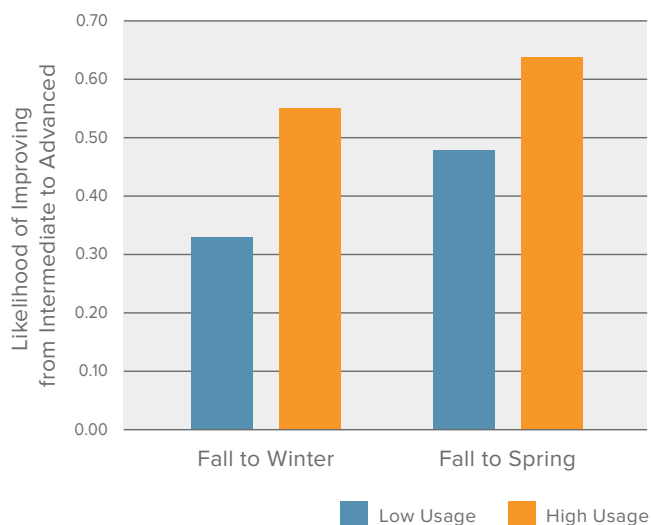
immediately, especially in allowing them to differentiate instruction. Data from a comprehensive assessment of school readiness showed that the more ABCmouse was used in a classroom over the course of the 2014–2015 school year, the better prepared students in that classroom were for kindergarten.⁴ An analysis of this data indicates that, on average, for every additional 100 ABCmouse learning activities completed by a student, there is a 3.6% boost in school readiness scores from the beginning to the end of the school year.⁵ Additionally, students in classrooms with higher than average ABCmouse usage saw significantly greater gains in school readiness than those in lower-usage classrooms, a statistically significant finding with a meaningful effect size ($d = 0.36$, $p < .001$).⁶

Full-Year School Readiness Gains
by ABCmouse Usage Level



Moreover, students in high ABCmouse usage classrooms were 1.6 times more likely to advance from Intermediate to Advanced levels on School Readiness Goals during the fall than students in low usage classrooms, and they were 1.3 times more likely to make such an improvement over the course of the full school year.⁷

Student Improvement by ABCmouse Usage Level



Strengthening the Head-Start-to-Home Connection

Beyond the benefits experienced in the classroom, Albina teachers also found that ABCmouse was helpful in engaging families and fostering a meaningful classroom-to-home connection.

Parent engagement is typically defined as parent behavior in support of a child's educational progress at home or in school.⁸ Three decades of research have demonstrated that parent/family involvement contributes in different ways to improved student outcomes related to learning and school success.⁹ These findings have remained consistent despite the fact that the makeup of families and schools has changed over time.¹⁰

⁴ Albina teachers assess 160 School Readiness Goals covering five knowledge areas—Cognition and General Knowledge, Language and Literacy, Approaches to Learning, Social and Emotional Development, and Physical Development and Health—three times during the school year: in November, January, and April. To be deemed school-ready for a goal, the child must demonstrate through direct observation that they are able to accomplish the goal consistently. There are three school readiness performance levels: Beginner (0–52 goals), Intermediate (53–106 goals), and Advanced (107–160 goals).

⁵ A multiple regression analysis found that the amount of ABCmouse usage was a strong predictor of learning growth, controlling for children's initial School Readiness Goals assessment in the fall, $F(2,421) = 20.98$, $p < .001$, $R^2 = .09$.

⁶ Students in "high-usage" classrooms completed on average more than the Albina-wide mean of 119 ABCmouse learning activities per student over the course of the school year; students in "low-usage" classrooms completed less than 119 activities on average. Prior to using ABCmouse there was no significant difference in School Readiness scores between students in classrooms that subsequently had high usage versus low usage.

⁷ High-usage classrooms had significantly higher percentages of students who improved from Intermediate to Advanced on School Readiness Goals than low-usage classrooms, with very large effect sizes (Fall to Winter: 55% vs. 33%, $p = .001$, $d = 1.51$; Fall to Spring: 64% vs. 48%, $p = .007$, $d = 1.18$).

⁸ Fantuzzo, Tighe & Childs, 2000; Hara & Burke, 1998.

⁹ Reynolds, 1992; Marcon, 1999.

¹⁰ Drake, 2000; Fan & Chen 2001; Buttery & Anderson, 1999.

Ms. Araya, who has been teaching at Albina Head Start for seven years, has a classroom of 20 children between three and five years old. Ms. Araya was initially excited by the scope and organization of ABCmouse. She soon came to appreciate that ABCmouse also offered a way for her to connect with parents and engage them in their children's learning: classroom-linked home accounts that allowed teachers to assign lessons to students to complete at home with their families.

To increase family involvement, Ms. Araya explained the program during parent-teacher conferences and printed free access codes so that students could easily access learning activities at home. Ms. Araya's classroom had among the highest usage rates of ABCmouse learning activities at home and school. She reported that children who used ABCmouse at home accelerated their learning. "I feel that children who have access to ABCmouse at home are more advanced. For instance, one of my students who worked on ABCmouse at home completed a whole ABCmouse level and received a certificate before the other students."

Research has shown that family involvement predicts a child's academic achievement and social development as they progress from early childhood programs through K–12 schools and into higher education.¹¹ A recent meta-analysis found moderate associations between parent involvement and a group of learning-related or academic skills—including achievement, motivation, task-persistence, and receptive vocabulary—during preschool and kindergarten.¹² A study of Head Start students evidenced that more parent involvement was associated with fewer classroom behavior problems.¹³

As a Head Start teacher, Ms. Araya has 160 learning goals to achieve with her students. She discovered that ABCmouse helped her students attain these goals. She tracked the time each student spent on ABCmouse at home and school and tried to give more

time at school to those students who lacked access to the ABCmouse learning activities at home. She also reported that students with limited English-speaking skills accelerated their vocabulary development by using ABCmouse. Furthermore, using ABCmouse in the classroom increased students' cooperative behavior. Ms. Araya explained that "in using ABCmouse, children have learned how to share the computers and take turns. They know that each student has a limited time to play and they respect that without fighting. They even help each other with the activities!"

Ms. Araya's experience illustrates that ABCmouse usage helps Head Start students improve their performance on School Readiness Goals and also provides an opportunity to engage parents in their children's learning experience.

Engaging Wait-listed Head Start Families

In November 2014, Age of Learning also extended full ABCmouse home account access to families who were wait-listed for the Albina program. One of the many Portland parents waiting for a space to open up at Albina was Kenya B. Her daughter, five-year-old Ja'Nyah, had been on the wait list for two years. As soon as ABCmouse became available to wait-listed families, Kenya created an ABCmouse account for her daughter. She reported that after using ABCmouse for just a few months, Ja'Nyah made notable progress in several areas: She was able to self-correct when counting out loud, and improved her ability to identify letters and numbers, as well as learned many letter sounds.

Kenya also reported that ABCmouse helped her to better connect with her daughter's learning. "ABCMouse is not overwhelming and you can be part of your kid's learning. As a parent you feel that there are not enough hours in a day to do everything you need to do. ABCmouse makes it easier for you to sit and learn with your child. You are actually learning how your child learns."

¹¹ Weiss, Caspe, & Lopez, 2006; Griffith, 1996.

¹² Fan & Chen, 2001; Faires, Nichols & Rickelman, 2000.

¹³ Fantuzzo et al., 2004; El Nokali, Bachman, & Votruba-Drzal, 2010.

The accelerated learning that Ja’Nyah’s mother witnessed was also seen in Ja’Nyah’s performance on an online assessment of seven early literacy and math skills developed by SRI International, which she completed before using ABCmouse and again four months later. Prior to using ABCmouse, Ja’Nyah was unable to answer questions correctly for four skills: naming lowercase letters, producing consonant sounds, cardinality, and adding two sets. She scored between 25% and 43% on other skills, which included counting up, recognizing numbers 1–20, and counting objects. After using ABCmouse for four months, Ja’Nyah’s performance improved dramatically: She scored between 83% and 100% on most skills, and no lower than 40% on the remaining skills for which she tested.

In addition to Ja’Nyah’s significant academic growth, Kenya also observed positive changes in her daughter’s approach to learning. “When we first started using ABCmouse, she always needed me by her side and asked for my help. Now she can complete the learning activities on her own, and she is more patient, independent, and self-assured. She is also more confident when interacting with other kids.”

According to Kenya, the positive impacts she observed with ABCmouse on Ja’Nyah’s approach to learning was in contrast to unsuccessful experiences with other learning resources. “Before we started ABCmouse, I bought all these educational books. Sometimes she cried because she could not do the learning activities. Now, with ABCmouse, she can understand the learning activities and feels confident.”

Ja’Nyah and Kenya’s experience shows how ABCmouse can help children develop key academic and social-emotional skills needed for success in school and can also engage parents in their children’s learning, which further supports improved student outcomes.

Summary

Parents, teachers, and administrators at Albina were pleased to see how much ABCmouse contributed to children’s academic readiness and how it helped families engage more deeply in their children’s learning. The experiences shared by Ms. Araya and Kenya B. illustrate the positive outcomes that can result when families have access to high-quality digital educational tools during critical early learning years.

These experiences using ABCmouse both in the classroom and at home suggest that high-quality digital educational tools can be more effective when they foster a home-school connection.

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